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Notes:

1. Untranslatable words are replaced with asterisks (****).
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CLAIM + DETAILED DESCRIPTION

[Claim(s)]

[Claim 1]A plate (3) is combined with said main part of a separator (2) by un-pasting up so that a slot (7) of gas induction (6) established in a main part of a separator (2) may become tunnel-like, A separator for fuel cells which fixes said plate (3) by continuing and carrying out integral moulding of the gasket (4) to the upper surface (2a) of said main part of a separator (2), and the upper surface (3a) of said plate (3), and is characterized by things.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the separator for fuel cells.

[0002]

[Description of the Prior Art]Although the separator 51 for fuel cells shown in drawing 4 is known from the former, The plate 55 combined with the main part 52 of a separator so that the slot 54 of the gas induction 53 established in the main part 52 of a separator may become tunnel-like in this separator 51 for fuel cells is being fixed to the main part 52 of a separator by the adhesives 56, Another object fabrication is carried out to the main part 52 of a separator, and the plate 55, and let the gaskets (not shown) which are similarly component parts of the separator 51 concerned be another parts.

[0003]About fixation of the plate 55, as shown in drawing 5, techniques, such as forming the floodgate 57, are proposed so that the adhesives 56 may not turn to the slot 54 of the gas induction 53 (refer to JP,2000-048832,A gazette).

[0004]Since [however,] the application process and drying process of the adhesives 56 are required also in any [of drawing 4 and drawing 5] fixation of the plate 55 to the main part 52 of a separator or case since the adhesives 56 are used, and there are therefore many man days,

There is a possibility of there being inconvenience which says that productivity is not so good, and producing the problem of quality, such as poor adhesion by a projection and an uneven application of the adhesives 56. Since the gasket of another object is combined after attachment of the plate 55 as described above, in laminating and using many separators 51 like a fuel cell, the inconvenience referred to as not good [so] also has the assembly nature of a stack.

[0005]

[Problem to be solved by the invention]In the separator for fuel cells which combines a plate with the main part of a separator so that the slot of gas induction established in the main part of a separator may become tunnel-like in view of the point of a more than [this invention], It aims at providing the separator for fuel cells which can realize improvement in productivity (man day reduction), improvement in quality, and improvement in assembly nature.

[0006]

[Means for solving problem]In order to attain the above-mentioned purpose, [the separator for fuel cells of this invention] A plate is combined with said main part of a separator by un-pasting up so that the slot of gas induction established in the main part of a separator may become tunnel-like, Said plate is fixed by continuing and carrying out integral moulding of the gasket to the upper surface of said main part of a separator, and the upper surface of said plate.

[0007]In the separator for fuel cells of this invention provided with the above-mentioned composition, A plate is combined with the main part of a separator by un-pasting up, and since integral moulding of the gasket is continued and carried out to the upper surface of the main part of a separator, and the upper surface of a plate and a plate is fixed, even if it does not use adhesives, it becomes possible to fix a plate to the main part of a separator. Since integral moulding of the gasket is carried out to the main part of a separator, and a plate, it becomes possible to really to the main part of a separator, and a plate deal with a gasket as parts.

[0008]The following technical ideas are included in this proposal.

[0009]. [one / namely, / of the separators for fuel cells which this application proposes] While attaching the plates of the product made of resin, or metal to the gas induction which consists of two or more slots for supplying and discharging fuel gas and air on the gas stream way of the separator (collector) of a fuel cell, considering it as the shape of a tunnel and securing a gas stream way, It sets up so that the circumference of a separator gas stream way and the field of a plate may turn into the same side, and integral moulding of the gasket is carried out so that each may be opened for free passage on the surface. Attachment of a separator and a plate makes a projection and an attachment hole process and fit into each.

[0010]In order to solve the fault in the above-mentioned conventional technology, a separator and a plate are inserted in, temporary fastening is carried out with a method, and integral

moulding of the rubber is carried out to a separator in the form where it mediates between a plate. Since this fixes a separator and a plate, adhesives become unnecessary and reduction of a man day and improvement in quality are made. Since the gasket currently used with another object is also united with a separator, the workability at the time of a stack assembly is also improvable. In this case, it becomes the same [the level difference of the sealing surface of a separator and a plate], or the direction of a plate becomes it is desirable and high within 0.05 mm less than 0.1 mm.

[0011]

[Mode for carrying out the invention]A work example of this invention is described according to Drawings below.

[0012]Drawing 1 shows a plane of the separator 1 for fuel cells concerning a work example of this invention, and the A-A line enlarged section is shown in drawing 2.

[0013]The separator 1 for fuel cells concerning the work example concerned has the main part 2 of a separator, the plate 3, and the gasket 4 as component parts, respectively, and these component parts are constituted as follows.

[0014]Namely, the gas induction 6 for carrying out the feeding and discarding of fuel gas, the air, etc. to the main part 2 of a separator from the exterior to the central gas stream way 5 is formed first, As shown in drawing 2, the slot 7 on the plurality (a figure 6) is mutually established in this gas induction 6 in parallel as a gas passage, and the plates 3 of the product made of resin or metal are put on the upper surface of the gas induction 6 that each slot 7 should be made a tunnel-like thing.

[0015]The crevice 8 for plate attachment for attaching this plate 3 is formed in the upper surface of the gas induction 6, and, as for the plate 3 attached to this crevice 8, that upper surface 3a is arranged in the upper surface 2a and the shape of flat-tapped of the main part 2 of a separator. In the crevice 8, the projection 9 of the necessary number is formed towards the upper part, corresponding to this, it attaches to the plate 3, and the hole 10 is formed. Therefore, temporary fastening of the plate 3 is carried out into the crevice 8 by fitting this attachment hole 10 into the projection 9, without using adhesives.

[0016]Where temporary fastening of the plate 3 is carried out into the crevice 8, integral moulding of the gasket 4 is continued and carried out to the upper surface 2a of the main part 2 of a separator, and the upper surface 3a of the plate 3. It is fabricated by liquefied silicone rubber, this gasket 4 is fabricated by injection molding process where the main part 2 of a separator which carried out temporary fastening of the plate 3 is inserted in a metallic mold, and it is laminated on the upper surface 2a of the main part 2 of a separator, and the upper surface 3a of the plate 3 simultaneously with fabrication. Therefore, the plate 3 is restrained by this gasket 4, and actual fixation of it is carried out into the crevice 8, without using adhesives.

[0017]In the separator 1 for fuel cells of the above-mentioned composition, The plate 3 is

combined with the main part 2 of a separator by un-pasting up, and since integral moulding of the gasket 4 is continued and carried out to the upper surface 2a of the main part 2 of a separator, and the upper surface 3a of the plate 3 and the plate 3 is fixed, the plate 3 is being fixed to the main part 2 of a separator, without using adhesives. Therefore, the application process and drying process of adhesives can be skipped from manufacture of the separator 1, the man day can be reduced, and, thereby, the productivity of the separator 1 can be raised. Since problems, such as poor adhesion by a projection or an uneven application of adhesives, are not produced with the abbreviation of adhesives, the quality of the separator 1 can be raised.

[0018] Since integral moulding of the gasket 4 is carried out to the main part 2 of a separator, and the plate 3, in the separator 1 concerned, the gasket 4 is really to the main part 2 of a separator, and the plate 3 dealt with as parts. Therefore, when laminating and using many separators 1 like a fuel cell, the assembly nature of a stack can be raised.

[0019] Comprise an above-mentioned work example so that the plate 3 attached to the crevice 8 for plate attachment provided in the upper surface of the gas induction 6 may arrange the upper surface 3a in the upper surface 2a and the shape of flat-tapped of the main part 2 of a separator, but. As it replaces with this and is shown in drawing 3, the level difference 11 may be set up among both sides 2a and 3a so that the direction of the upper surface 3a of the plate 3 may become higher than the upper surface 2a of the main part 2 of a separator, and, thereby, the gasket 4 restrains the plate 3 firmly. the size (height) of the level difference 11 -- an absolute size -- less than 0.1 mm -- desirable -- less than 0.05 mm -- with -- it comes out enough.

[0020]

[Effect of the Invention] This invention generates the following effects.

[0021] Namely, in the separator for fuel cells of this invention provided with the above-mentioned composition, A plate is combined with the main part of a separator by un-pasting up, and since the plate is fixed by continuing and carrying out integral moulding of the gasket to the upper surface of the main part of a separator, and the upper surface of a plate, the plate is being fixed to the main part of a separator, without using adhesives. Therefore, the application process and drying process of adhesives can be skipped from manufacture of a separator, the man day can be reduced, and, thereby, the productivity of a separator can be raised. Since problems, such as poor adhesion by a projection or an uneven application of these adhesives, are not produced with the abbreviation of adhesives, the quality of a separator can be raised.

[0022] Since integral moulding of the gasket is carried out to the main part of a separator, and the plate, a gasket is really to the main part of a separator, and a plate dealt with as parts. Therefore, when laminating and using many separators like a fuel cell, the assembly nature of

a stack can be raised.

[Translation done.]